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RP:0068

Colonel Michael M. Jenks
District Engineer (PODCO-O GP 86-1)
U.S. Army Corps of Engineers
Building 230
Ft. Shafter, Hawaii 96858

Dear Colonel Jenks:

Public Notice for Proposed General Permit PODCO-O GP 86-1
Natural Energy Laboratory of Hawaii
(Seawater Intake Pipelines and Pump Stations)
Keahole Point, North Kona, Island of Hawaii

The above cited Public Notice reflects the intent of the Corps of Engineers to issue a general permit to the Natural Energy Laboratory of Hawaii (NELH) for the installation of up to 15 permanent cold and warm water intake pipes and associated pump stations at Keahole Point, North Kona, on the Big Island. The Environmental Center has been assisted in our review of this public notice by Frank Sansone and Keith Chave, Oceanography Department; Stephen Smith, Hawaii Institute of Marine Biology; Frans Gerritsen and Hans Jurgen-Krock, Ocean Engineering Department; and Michael Tokushige, Environmental Center.

In general our reviewers had few comments regarding the environmental effects of the actual construction and installation of the pipes. The consensus of opinion being that although destruction of the near shore reef environment will be necessary during the installation phase, the effects will be short term and no significant long term negative effects due to construction are anticipated.

We are unable to comment on the adequacy of the design per se, however, as no criteria for the structural design are given in the public notice. The severity of the nearshore wave conditions at Keahole Point suggests that the structural design needs will be a critical factor in the long term integrity of the project. It is our understanding that longshore current velocities can be quite high in this area. As such, the one foot minimum

tremie concrete covering over the pipe may not be an adequate thickness particularly if the backfill materials on top are eroded away. Inasmuch as design failure could require additional or longer term disruption to the environment, not to mention the added economic costs to the research facilities, we strongly suggest that one of the local ocean engineering firms, with special expertise in offshore pipeline construction, be consulted to assure that the pipes will be adequately protected.

The most serious concern with regard to the potential environmental effects of the pipeline construction comes not with the installation, but with the pumping of the seawater and its disposal. The public notice provides little information as to the environmental effects of the use of the pipeline and the fate of the water it will supply. It does not, for example, indicate the volume of water to be pumped but instead refers to the volumes to be disposed of (approximately 158,000 gpm). We assume that the volume of water that can be withdrawn through 15 pipelines ranging in size from 12 to 48 inches in diameter is very large. The environmental effects of the proposed use of a trench some 2000 feet inland of the shoreline as a disposal site are not addressed in the public notice. The specific location and elevation of the trench should be given, the effects of the discharge on the underlying brackish ground waters, the quality of the effluent, and the predicted effects of its impacts to the coastal marine environment at Keahole should be discussed.

The legal aspects of disposal in trenches is unclear to us. Does the Corps have jurisdiction for controlling or regulating discharges to the marine environment that originate inland of the shoreline? It seems that Hawaii's situation may be unique. The permeability of the volcanic substrate is generally so great that effluents discharged inland but near the coastline, ie. the proposed trench, are likely to enter the nearshore coastal waters almost as easily as if they were disposed of directly at the shoreline. Furthermore, little alteration of their chemical composition is likely because of the nature of the material through which the water will drain. If the Corps does not have jurisdiction, are there other federal agencies that would be involved in assessing or regulating such discharges?

The public notice states that three methods of disposal are being assessed by a separate State supplemental environmental impact statement. The three methods are: direct discharge, disposal into trenches, and disposal into injection wells. We urge that assessment of a fourth alternative, disposal through an offshore outfall, be required. Surely much of the cost of installation of an offshore outfall could be reduced if the discharge pipe were laid in the same trench with the intake pipelines. By regulation of the density (ie. temperature) of the effluent, contamination of the intake lines could be avoided by a careful siting of the discharge riser, sufficiently removed vertically as well as horizontally from either the warm or cold water intake lines.

Assuming that the effluent will ultimately reach the ocean, whether it is discharged in a trench on land or in some other type of outfall arrangement, a monitoring plan to assess the effects of the discharge should be a requirement of the Corps permits now under consideration. The monitoring could be done on an annual basis and may be limited to key or indicator species and/or chemical parameters but should be sufficiently comprehensive to allow evaluation of the long term effects of the discharge on the ecosystem.

The environmental effects of the proposed disposal systems need to be resolved prior to issuance of the general permit to construct 15 pipelines and their appurtenant pumping systems.

We appreciate the opportunity to provide comments on this public notice.

Yours truly,

Jacquelin N. Miller
Acting Associate Director

cc: OEQC
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